

WHAT IS CLAIMED IS:

1. A punch pin comprising:

a cylindrical body having a first end and a second end, three terminal ends extending from a periphery of the second end of the body and each terminal end having a tip portion, a groove defined in the second end of the body and enclosed by the three terminal ends, the three respective tip portions being located at three parallel planes which are perpendicular to a longitudinal axis of the cylindrical body, the three terminal ends each having an inner surface and two cutting edges, the tip portion connected between the two cutting edges, a recess connecting the two cutting edges of any two adjacent terminal ends, each cutting edge having an edge surface which has a first angle α relative to the longitudinal axis of the cylindrical body, the groove including an upper curved surface, a curved area and the three inner surfaces, the upper curved surface connecting the curved area, a second angle β being defined between the inner surface of each terminal end and the longitudinal axis of the cylindrical body.

2. The punch pin as claimed in claim 1, wherein the first angle α is located in a range from 30 to 80 degrees.

3. The punch pin as claimed in claim 1, wherein the second angle β is located in a range from 15 to 40 degrees.

4. The punch pin as claimed in claim 1, wherein a radius of the curved area is 19.83 mm.

5. The punch pin as claimed in claim 1, wherein a radius of the upper curved surface is 0.75 mm.

6. The punch pin as claimed in claim 1, wherein three respective heights of the three respective terminal ends from the recess to the tip
5 portion are 2.4 mm, 2.26 mm and 2.1 mm respectively.